

CHARGE NUMBER: 1708
PROJECT TITLE: CIGARETTE MATERIALS SCIENCE
PROJECT LEADER: N. B. Rainer
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In the continued study of the chemistry of oxidized cellulosic materials, it has been discovered that oxidation of α -cellulose with ozone produces traces of oxalic acid. This result is not obtained when using NO_2 or hot air as the oxidizing agent. The amount of oxalic acid produced ranges from 0.8% with 10 hours of O_3 treatment, to 1.6% after 40 hours treatment. The ratio of insoluble to soluble (oxalic) carboxyl groups was observed to increase with severity of O_3 treatment, and can be modified by chemical and/or physical pretreatments of the cellulose. This information is expected to provide further insight into the mechanism of the reaction.¹

Flax paper was found to react with ozone about 2.5 times faster than the reaction of α -cellulose with ozone.² It has also been found that potassium citrate, present in burley stem material and cigarette wrap paper, is degraded by ozone to oxalate, which in turn undergoes further degradation.³

A sample of cobalt/alumina catalyst for CO oxidation was evaluated by the Mine Safety Appliance Co. (MSA), and was found to be of interest for use in gas mask cannisters.⁴ Further samples of the material are being prepared for shipment to MSA.

Representatives of the Hercules Chemical Company visited to learn more about our technology involving the use of microporous polystyrene to opacify paper. The Nicolet Division is also interested in this subject,⁵ and samples are being prepared for their evaluation.

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N. B. Rainer

1. Notebook 6393, pp. 19-20; 24, 26, 29, 39.
2. Notebook 6393, p. 40.
3. Notebook 6119, pp. 83-84.
4. Letter, MSA to H. K. McMath, dated 11/27/73.
5. Letter, Nicolet to N. B. Rainer, dated 12/5/73.

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